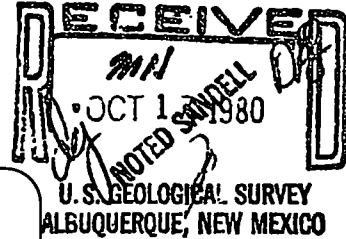




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270



October 15, 1980

Mr. Marc Nelson
Environmental Scientist
U.S. Department of the Interior
Box 26124
Albuquerque, New Mexico 87125

Confidential Claim Retracted

Authorized by: SC

Date: 10/30/80

Dear Mr. Nelson:

This letter is in response to your September 22, 1980 request to review the Anaconda Company's proposed reclamation plan for the Jackpile-Paguate Uranium Mine Complex located on the Laguna Indian Reservation near Grants, New Mexico. The mine has operated for 28 years on approximately 7500 acres of land.

The Plan provides a very comprehensive overview of the general approach that Anaconda proposes to take to reclaim the areas impacted by its mining activities at Jackpile-Paguate. However, quantitative data which are needed to determine impacts, and hence adequacy of the reclamation operations, were found to be almost totally absent. Also, references to "established regulatory guidelines," "appropriate environmental regulations," and "future studies" were too general. Specific regulations should be referenced and appropriate portions cited to show compliance.

We offer comments on the three specific areas as requested. Other observations have been noted that we hope will be helpful.

RCRA Regulations

You specifically asked if the reclamation would be in compliance with the Resource Conservation and Recovery Act (RCRA) regulations governing mining wastes. These waste materials may be subject to the hazardous waste regulations.

On May 19, 1980, EPA published regulations on most of the wastes we intend to regulate. In the enclosed preamble of these regulations, including radioactive wastes and mining overburden as a hazardous waste is discussed. EPA is deferring the development of regulations and management standards for radioactive wastes until Congress clarifies our authority to control these wastes. Congressional clarification is expected this year.

If EPA is given authority to regulate such wastes, permits will be required and facilities will be subject to meeting standards. Permitting requirements for Indian Lands will be administered by EPA and cooperating agreements will need to be developed among interested parties. Thus, the State of New Mexico and the applicant company should be notified of the pending Congressional actions.



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Groundwater

One of our chief environmental concerns about the Plan is the potential for groundwater contamination. We suspect that backfilling ore associated waste below the water table will contribute some contaminants to the aquifer. Backfilling with shale would probably lessen the impact. However, we cannot evaluate the extent of contamination without further information. Specifically, we need more information on the physical and chemical characteristics of the waste, leachate chemistry from ore wastes, present water quality of the Jackpile sandstone, hydrologic data (permeability, potentiometric surfaces, etc.) and geologic information (lithology, mineralogy, etc.) on the Jackpile sandstone in and immediately surrounding the mine area, and usage of water from the Jackpile, particularly down-gradient from the mine area.

We understand that this information may be available from the operators or from the U.S. Geological Survey (USGS) (which has performed some hydrologic studies in the Laguna Indian Reservation). If this information can be obtained, we will be happy to perform a more detailed assessment of the groundwater impact.

Radon Emissions

With respect to your question about 4 feet of shale and 2 feet of top dressing controlling radon to within 1 pCi/l above background, that is a very difficult question that does not have a simple answer. There are many factors that determine the radon concentration, including degree of compaction and moisture content of shale and topsoil cover, radium-226 content and particle size of the protore and covering materials, and meteorological conditions.

This problem has been studied by the U.S. Nuclear Regulatory Commission (NRC) for radon suppression from uranium tailings and discussed in their generic Draft EIS on uranium milling, NUREG-0511 (see in particular Chapters 8, 9 and 12 and Appendices J and K). The methodology is directly applicable to the problem of suppressing radon emanation from mine spoils or protore containing radium-226. Half-value layers, i.e., the thickness of cover which reduces radon flux by a factor of two, varies from 0.12 meter for moist clay, to 0.13 meter for moist well-compacted soil, to 0.5 meter for typical western soil to 1.0 meter for sandy porous soil. Radon flux for uncovered material is estimated as 0.33 to 1.0 pCi/m²-sec for each pCi/g of radium-226 in the source material.

Finally, radon concentration in units of pCi/l is a function of the radon emanation flux (units of pCi/m²-sec) and local annual average meteorological parameters. In our review of the Reclamation Plan, we did not find any of the detailed site-specific data and materials characterizations needed to estimate what the radon concentration in air would be. This can be estimated from a detailed examination of the site-specific physical, chemical, hydrological and meteorological parameters, but measurements from test plot using actual materials would probably provide a more reliable estimate. Some of the already reclaimed areas may be useful for such measurements.

In another study performed for the Department of Energy by Ford Bacon Davis Utah Co. (Phase II, Title I Engineering Assessment Contract E(05-1)-1658, 1976-1978) surface concentration of radon is estimated to be reduced by a one-foot soil cover, "by a factor of 10^2 to 10^6 , depending on the degree of compaction and moisture content of the soil cover."

We would be happy to work with you to develop a plan to answer some of these questions about radon emissions from the reclaimed areas.

Other Comments

1. Anaconda proposes to terminate its liability approximately three years after completion of earthmoving, grading and seeding activities, at which time, the Plan claims, forage will have been successfully and permanently established. We believe three years may be somewhat optimistic in view of the arid conditions of the area and susceptibility of the land to wind erosion. This would be especially true in areas where mine spoils are used in place of the native topsoils. The Plan notes that reclamation has been successful to the extent that some reclaimed areas exhibit species diversity, cover and forage production that approximate that on surrounding undisturbed rangeland. Supporting data and specific details, unfortunately, are not provided to validate this observation. We believe the Plan should include many more details of the monitoring program. Anaconda should consider specifying termination of liability in terms of monitoring results instead of a fixed time interval.

2. The last page of the Plan states that the objective of reclamation specifically excludes any guarantee of habitability. This is the first mention that the reclaimed areas will not be habitable and appears to conflict with the objectives listed on page 7. These objectives include mitigation of effects, elimination of health and safety hazards and protection of the environment. Evidently, these objectives can only be partially achieved. The residual impacts that make the reclaimed areas uninhabitable should be identified, and additional measures considered, since eventually, the area will probably be occupied by humans.

3. The objective to mitigate effects of disturbed lands entails the post-mining return of lands to use as rangelands. This use should be supported by data and calculations which show that radiological impacts as a consequence of past mining activities are not significant.

4. The Mesita Reservoir appears to be the recipient of both ground and surface waters from the project area. As most of the water loss from the Reservoir is from evaporation, contaminants from the mining operations, including radiological contamination, could conceivably concentrate here over the years. We suggest the waters of the reservoir be monitored and preventive procedures developed to ensure against a buildup of pollution in the Lake.

5. The Plan notes that official approval of the Plan has not yet been granted by all parties concerned. The Plan should identify specifically which parties disapprove and the reasons. The Company's approach to resolving the major points of disagreement should also be detailed.

6. We note that materials which pose a potential radiological hazard will be used as pit backfill or stabilized in place and, in either case, will be covered with non-hazardous material to mitigate the potential hazard. We approve of this general approach. However, criteria should be established before recovery begins to define hazardous and non-hazardous materials in terms of their radioactivity content. No such criteria could be found in the Plan. In this connection, we understand previous reclamation activities have been conducted in such a way that some of the more hazardous materials were placed on top of less hazardous ones. We believe the Plan should evaluate the need for corrective action at any such reclaimed areas.

7. Surface waters entering the lease area are characterized as to their quality and their inorganic constituents compared with drinking water standards. Since two of the constituents mentioned, manganese and sulfates, are not listed in EPA's Primary Drinking Water Regulations, some other standard is evidently being used, such as the 1962 Public Health Service Standards. The EPA Regulations should be used for the comparisons since they replace the 1962 Standards. We believe the stream quality section should be expanded to characterize the quality of streams leaving the lease area in addition to those entering the lease area, and also include radioactive constituents in the descriptions. Post-reclamation levels expected and any specific reclamation goals for surface stream quality, should also be listed.

8. The reclamation plan states that all mining activities are scheduled to end in 1980 and ongoing reclamation will continue. Although the exact scheduled date for completion of this project has not been finalized, it would have been helpful if an approximate date had been listed.

9. On page 29 the Plan describes how 20,000 drill holes will be plugged during reclamation. The Plan would be a stronger document if assurances were given that the USGS standards for this action would be followed.

10. On page 36, the Plan states that the P-10 decline will be closed. We assume that this means the decline will be sealed as well, and we suggest that this be clarified. The decline should be permanently sealed in some way so it does not become a continuing source of radon exhalation.

Thank you for the opportunity to review the proposed reclamation plan.

Sincerely,



Clinton B. Spotts
Regional EIS Coordinator (6ASAF)

Enclosure

Subpart B (§§ 250.12 and 250.14 of the proposed rule) establishes the criteria used by EPA in identifying the characteristics of hazardous waste and listing particular hazardous wastes. Subpart C (proposed § 250.13) contains the hazardous waste characteristics which EPA has identified and Subpart D (proposed § 250.14) the particular hazardous wastes which EPA has listed to date based on those criteria. As noted

in the definition of hazardous waste in Subpart A, these two subparts are the cornerstone for the Federal hazardous waste management system because they identify which solid wastes will be regulated as hazardous wastes under that system.

The following table provides a rough correlation between the various provisions of EPA's proposed and final Section 3001 regulations:

Subject	Proposed rule	Final rule
Purpose of regulations	§ 250.10(a)	§ 261.1
General definitions	§ 250.11	§§ 260.10, 261.2, 261.3.
Definition of solid waste	§ 250.10(b)	§ 261.2.
Definition of hazardous waste	§ 250.10(d)(1)	§ 261.3
Exclusions	§§ 250.10(d)(2), 250.11(a)(7), 250.20(c)(4)	§ 261.4.
Small quantity generators	§ 250.29(a)	§ 261.5
Criteria	§§ 250.12 (a) and (b), 250.14	Subpart B.
For identifying characteristics	§ 250.12(a)	§ 261.10.
For listing	§§ 250.12(b), 250.14	§ 261.11
Characteristics	§ 250.13	Subpart C.
Ignitability	§ 250.13(a)	§ 261.21.
Corrosivity	§ 250.13(b)	§ 261.22.
Reactivity	§ 250.13(c)	§ 261.23.
Toxicity	§ 250.13(d)	§ 261.24.
Lists	§ 250.14	Subpart D.
Non-specific sources	§ 250.14(a)	§ 261.3.
Specific sources	§ 250.14(b)(2)	§ 261.31.
Disposal chemicals	§ 250.14(a)	§ 261.33.
Procedures for exempting listed wastes from particular generating facilities	§ 250.15	§§ 260.20, 260.22
Petitions		
Revision of list and characteristics	§ 250.12(c)	§ 260.20
Equivalent methods	§§ 250.13(a)(1)(i), (a)(2), (b)(1)(i), (b)(1)(ii), (d)(2)(i)	§§ 260.20, 260.21

Except for some broad issues which cut across all the Section 3001 regulations (and in some cases EPA's Section 3002 through 3004 standards), the preamble to this regulation will generally follow the structure of the final regulations. It will discuss some of the more significant issues raised during the public comment period on EPA's proposed regulations and the revisions made in response to those comments. Background documents which address these comments and revisions and explain the basis for these regulations in more detail are available as noted above.

III. General Issues

A. Phasing of Regulations

Several months prior to the proposal of EPA's Section 3001 regulations, the State of Illinois, several environmental groups, and a solid waste trade association sued the Agency under Section 7004 of RCRA to obtain a court order requiring EPA to promulgate final regulations under Section 3001 (and other sections of the Act) by a date certain. On January 3, 1979, the court issued an order directing EPA to issue final regulations under Section 3001 by December 31, 1979. *State of Illinois v. Costle*, 12 ERC 1597 (D.D.C. 1979). This order was subsequently modified to require EPA to use its best efforts to meet an April 1980 promulgation date (Order of December 18, 1979).

Given our limited resources, it has not

been possible both to meet this deadline and to make final decisions on every segment of the very ambitious regulatory program which the Agency proposed on December 18, 1978, and August 22, 1979. We have tried to prioritize our efforts, insofar as possible, to deal with the most serious environmental problems first (e.g., ones that are national in scope, are not dealt with by other State or Federal regulations) and to finalize those portions of the proposed regulations which must be issued if a core hazardous waste management program is to go into effect.

For these reasons, the final regulation published today defers final action on a number of aspects of the proposed regulation, including integrating the regulation of polychlorinated biphenyls ("PCBs") under RCRA and the Toxic Substances Control Act ("TSCA"); fully regulating wastes that are used, re-used, reclaimed or recovered; and a number of proposed listed wastes. To assist States in developing hazardous waste programs under Section 3006 of RCRA and the regulated community in preparing to comply with future regulatory requirements, EPA is providing the following information on its current schedule for acting on these deferred portions:

1. **PCB Integration.** On February 17, 1978 (43 FR 7150) EPA issued final regulations under Section 6(e) of TSCA establishing storage, landfilling,

incineration, packaging, marking, placarding and recordkeeping requirements for waste PCBs. Revisions to these regulations were published on May 31, 1979 (44 FR 31514).

Because of the potential overlap between the RCRA hazardous waste management standards and the TSCA PCB marking and disposal regulations, in its proposed Section 3004 regulations, EPA requested comment on five alternative ways of integrating the two sets of regulations (43 FR 58993-58994). See also 43 FR 31539 (May 31, 1979). Based on the comments received, and EPA's own review of the two sets of regulations, the Agency has made a tentative decision that the best way to regulate PCBs is to merge the TSCA PCB rules into the final RCRA regulations.

Unfortunately, it has not been possible to complete this task to date. Both rules are lengthy and complicated, and must be carefully coordinated to avoid regulatory loopholes and disruption of the ongoing TSCA PCB program. Completing this coordination by April of this year would have required diverting personnel from the task of finalizing the RCRA hazardous waste program. EPA decided that it made little sense to focus its limited resources on revising an existing regulatory program when so much work needed to be done to develop a new one.

EPA expects to complete the task of integrating the RCRA regulations and TSCA PCB rules by the fall of 1980, and to amend Parts 261 through 265 to bring waste PCBs into the Subtitle C system at the same time that it promulgates its final Phase II Section 3004 standards. In the interim, the handling and disposal of waste PCBs will continue to be regulated under TSCA and other EPA statutes.

2. **Regulation of Wastes Which Are Used, Re-Used, Recovered or Reclaimed.** As discussed in some detail in section IV.B. of this preamble, EPA will be deferring the promulgation of standards to regulate hazardous waste recycling and reclamation operations and the actual use and re-use of hazardous waste until beginning in the fall of 1980.

3. **Radioactive Wastes.** In its December 18, 1978, regulation, EPA proposed to list the following radioactive materials as hazardous wastes: waste rock and overburden from uranium mining; overburden and slimes from phosphate surface mining; waste gypsum from phosphoric acid production; and slag and fluid bed products from elemental phosphorous production (§ 250.14(b)(2)). At the same time, it proposed to establish special management standards for these wastes

which would regulate their disposal (§§ 250.46-2 and 250.46-4) and prevent their being used as fill in land used for residential development or in building products unless radon emissions and gamma radiation could be reduced to specified levels (§§ 250.46-3(c) and 250.46-4(b)). The purpose of these latter use restrictions was to reduce the amount of radiation to which persons living or working in buildings constructed either on land where these wastes were deposited or with materials containing these wastes would be exposed.

In February, 1980, the House of Representatives passed a bill which would amend RCRA to temporarily suspend EPA's authority to regulate these wastes under Subtitle C except as necessary:

to prevent radiation exposure which presents an unreasonable risk to human health from the use in construction or land reclamation (with or without revegetation) of solid waste from the extraction, beneficiation or processing of phosphate rock or the extraction of uranium ore (Section 3(d) of H.R. 3994).

Because Congressional action on this provision is imminent (see section III.E. of this preamble), we are deferring the development of final or interim final regulations establishing a criterion for listing radioactive wastes, listing radioactive phosphate and uranium wastes, and establishing management standards for those wastes until Congress has spoken. Assuming Congress acts by the end of the summer, we would hope to promulgate regulations for radioactive wastes by the fall of 1980. This would give EPA some time to better refine its final standards and conform them to any legislative amendments, to fully respond to comments on its proposal and to coordinate its final standards with its other regulations on used, re-used, recovered and reclaimed wastes (see section IV.B.4. of this preamble).

Although the use of radioactive mining wastes in residential landfill and construction materials may pose a serious health hazard, this hazard is limited to approximately half a dozen states where these wastes are generated. Thus, in contrast with many of the wastes covered by today's regulation, which are more ubiquitous and are frequently transported across state lines, these wastes can probably be regulated effectively at the state level pending EPA action.

4. **Infectious Wastes.** In its proposed regulation, EPA listed as hazardous wastes infectious wastes generated by certain departments in health care facilities and veterinary hospitals, by laboratories handling etiologic agents, and by sewage treatment facilities, unless the wastes were sterilized or

incinerated in accordance with the methods prescribed in Appendix VI or § 250.14(b)(1)(iii).

EPA received a number of comments on this proposal, particularly the absence of an infectious waste listing criterion, the breadth of sources covered and the Agency's proposed treatment methods. Although EPA has completed its evaluation of these comments and has developed a criterion for listing infectious wastes and refined its proposed list, it has not been able to complete the work necessary to identify the treatment methods it would allow to be used to exempt these wastes from regulation. Because logic dictates that these three parts of the regulation should be promulgated simultaneously, EPA is deferring action on infectious wastes until it can finish this last segment. It expects to complete this task by the fall of 1980.

In the meantime, none of these wastes will go entirely unregulated. Many will be subject to State disposal regulations or State laws governing hospitals and other health care facilities. Because of public health considerations, the operations of these facilities are generally closely scrutinized by State and local officials. In addition, during this interim period, these wastes will be subject to the "open dumping" prohibition under Section 4005(c) of RCRA. EPA's regulations defining those practices which constitute "open dumping" expressly prohibit the land disposal of infectious wastes unless measures have been taken to minimize disease vectors (40 CFR 257.3-6).

5. **Other Listed Wastes.** The other waste streams on which EPA has deferred final action fall into four basic categories: Wastes which EPA intends to list as hazardous but for which revised background documents could not be completed in time for promulgation as part of this regulation; wastes for which EPA currently has insufficient data to make a final determination that the wastes are hazardous; wastes which available data suggests are not hazardous; and wastes which are no longer produced.

It is EPA's intent to amend this regulation to add most of the wastes included in the first category of deferred wastes by June 15, 1980 (see Appendix A) and the remainder by fall, 1980 (see Appendix B). Persons handling wastes identified or listed in both this regulation and Appendix A may, if they desire, save themselves the expense and inconvenience of a second notification under Section 3010 of RCRA by including Appendix A wastes in the notification required to be filed on August 18, 1980. Owners and operators of facilities which treat, store or dispose of the wastes in both categories may similarly avoid having to amend their

Part A permit application (see 40 CFR 122.22) by including Appendix A wastes in their initial application.

EPA will take action on the second category of deferred wastes—wastes for which EPA currently has insufficient data to make a final listing determination—as soon as it is able to obtain the information necessary to make those decisions. To enable the Agency to gather such information without the *ex parte* contact restraints normally imposed on post-proposal rulemaking activities, EPA will in the future be reopening the comment period on its December 18, 1978, proposal to list these wastes. EPA does not plan on taking any further action on the final two categories of wastes.

EPA does not believe that phasing the promulgation of Section 3001 in this fashion will frustrate the objectives of the statute or unduly complicate implementation of the hazardous waste program. Sections 2002(b), 3001(c) and 7002 of the Act clearly contemplate that regulations under Section 3001 will be periodically expanded or otherwise revised. See also H.R. Rep. at 25. The preview of the content and timing of future regulations provided above should help to minimize the disruption that phased promulgation of major portions of the Section 3001 regulations might cause for the regulated community and for States which are attempting to formulate their hazardous waste programs. In light of these considerations and the pressing need to begin implementation of a national hazardous waste program as soon as possible, EPA sees no reason to postpone publication of those portions of its Section 3001 regulations which it is ready to finalize today pending a final decision on the remaining portions. Such an approach would cause an unwarranted delay in the commencement of the program.

B. Interim Final Provisions

The following portions of this regulation are being published as "interim final" regulations: the lists of hazardous wastes (Subpart D), the criteria for listing hazardous wastes (§ 261.11), and the definitions of "solid waste" (§ 261.2) and "domestic sewage" (§ 261.4(a)). This means that, although these regulations are promulgated for purposes of the 90-day notification requirement under Section 3010(a), the six-month effective date under Section 3010(b) and the 90-day petition deadline under Section 7006, the public will have an additional opportunity to comment on them before they are published as "final final" regulations.

The lists of hazardous wastes under Subpart D are being published in interim final form to allow the public an opportunity to comment on the

generated only household refuse or household septic tank pumpings was excluded from regulation as a generator of hazardous waste. "Household refuse" was defined as trash or rubbish ordinarily produced by a family at their home. This exclusion, which also was available to apartment houses, condominiums and hotels, was based on the legislative history of RCRA.

The few commenters that addressed this provision made two general points. First they said that the "ordinarily produced" portion of the proposed "household refuse" definition might not include certain materials such as medicinal drugs and ointments, household cleaning agents and solvents, waste oils, paints and pesticides that might be purchased at a grocery, drug or hardware store. Second, a commenter pointed out that a Federal agency could not, by definition, produce household wastes.

The Agency has retained the general concept contained in proposed § 250.20(c)(4) in these regulations. The provision is stated, however, as an exclusion of a waste stream—namely "household wastes"—rather than as an exclusion of a class of generators. This change is more in accord with legislative intent. The exclusion is based on language in the Senate Report which states:

(The hazardous waste program) is not to be used to control the disposal of substances used in households or to extend control over general municipal wastes based on the presence of such substances.

(S. Rep. No. 94-988, 94th Cong., 2nd Sess., at 18.)

This indicates Congressional intent to exclude *waste streams* generated by consumers at the household level. Since the wastes generated at hotels and motels are essentially the same as those generated by consumers in their households, EPA believes that such wastes should be within the exclusion.

The Senate language makes it clear that household waste does not lose the exclusion simply because it has been collected. Since household waste is excluded in all phases of its management, residues remaining after treatment (e.g. incineration, thermal treatment) are not subject to regulation as hazardous waste. Such wastes, however, must be transported, stored, treated and disposed in accord with applicable State and Federal requirements concerning management of solid waste (including any requirements specified in regulations under Subtitle D of RCRA.)

When household waste is mixed with other hazardous wastes, however, the

mixture will be deemed hazardous in accord with § 261.2(a)(2)(ii) of these regulations except when they are mixed with hazardous wastes produced by small quantity generators (see § 261.5). While household waste may not be hazardous per se, it is like any other solid waste. Thus a mixture of household and hazardous (except those just noted) wastes is also regulated as a hazardous waste under these regulations.

Because of comments on this matter, the relationship of this exclusion to refuse-derived fuel (RDF) should also be explained. RDF is a processed material (usually shredded) that is produced from solid waste and used as a fuel. RDF production usually involves the extraction of inorganic components from the waste leaving the combustible organic component for its fuel value. In the same sense that residue from the treatment of household wastes is not subject to regulation as a hazardous waste, as discussed above, neither is RDF subject to such regulation. Moreover, RDF is not a "solid waste" under § 261.2 because it is not an "other discarded material;" it is or is not intended to be discarded (§ 261.2(b)(1)), it is not a material that has served its original intended purpose (§ 261.2(b)(2)) and it is not a manufacturing or mining by-product (§ 261.2(b)(3)).

EPA agrees with those commenters who suggested that Federal agencies cannot qualify as households. Therefore wastes generated by such agencies are not within the household waste exclusion. In addition EPA believes that medicinal drugs and ointments, household cleaning agents and solvents, waste oils, paints and pesticides purchased at grocery, drug or hardware stores may be disposed of as part of a consumer's household wastes. If a household disposes of such wastes, the wastes may be subject to the household waste exclusion.

Septic tank pumpings were included in the exclusion contained in § 250.20(c)(4) of the proposed regulation. After further examination of this provision, EPA has concluded that such pumpings should be excluded from regulation as hazardous wastes to the extent that they constitute household waste. Households often use septic tanks to dispose of a portion of their wastes. As with all household wastes, these sanitary wastes in household septic tanks are excluded from regulation as a hazardous waste in all phases of their management. Thus septic tank pumpings drawn from household septic tanks are not regulated as hazardous wastes under these

regulations. Any wastes drawn from non-household septic tanks are regulated like any other solid waste under these regulations.

5. Agricultural Wastes. Under § 250.10(d)(2)(i) of the proposed regulation, agricultural wastes (including manures and crop residues) which are returned to the soil as fertilizers or soil conditioners were excluded from regulation as hazardous waste. The exclusion was based on the legislative history of RCRA which specifically calls for such an exclusion. See H. Rep. No. 94-1491, 94th Cong., 2nd Sess. 2 (1976). Commenters generally accepted this exclusion, and EPA has decided to retain it because the need for such an exclusion is so clearly identified in RCRA's legislative history.

Some commenters asked the Agency, however, to go beyond the specific language of the legislative history and expand the exclusion to include silvicultural wastes. They argued that the foliage and branches left in the forest after trees have been cut are not hazardous and that such wastes help to enrich the soil and control erosion. EPA has decided not to provide a specific exclusion for such wastes because there is no indication in the legislative history of RCRA that the Congress meant to include silvicultural wastes in the exclusion otherwise applicable to agricultural wastes. Moreover EPA has no basis to make a general determination that all silvicultural wastes will not pose environmental problems if mismanaged.

In response to the specific comment about tree branches, it must be recognized that the obligation placed on generators of solid waste is to determine whether their waste is hazardous. Tree branches are not listed as hazardous wastes. Therefore, the only obligation placed on a timber operation is to determine whether its wastes exhibit hazardous characteristics. EPA expects that, in the case of tree branches that are not hazardous, it will be a relatively easy task for the generator to determine that his waste is not hazardous.

6. Mining Waste. Section 250.10(d)(2)(ii) of the proposed regulation excluded overburden intended for return to the mine site from regulation under Subtitle C unless such overburden had been specifically listed as a hazardous waste. This exemption was based on the legislative history of RCRA.

Generally commenters accepted this exemption but sought a clearer specification of what wastes fall within the exclusion. Thus commenters sought a definition of both "overburden" and "mine site." Commenters also sought a

clearer interpretation of the time within which the "return to the mine site" would have to occur. Finally, several commenters objected to that portion of the proposed regulation which allowed EPA to list and regulate specific overburden materials otherwise covered by the exclusion. EPA had invoked this provision when listing uranium mining overburden and waste rock and phosphate mining overburden in the proposed regulation. These same commenters had also objected to the proposed listing of such wastes.

After review of the comments and further analysis, EPA has decided to retain an exemption for "mining overburden returned to the mine site", defining it as "any material overlying an economic mineral deposit which is removed to gain access to that deposit and is then used for reclamation of a surface mine."

In enacting RCRA, the Congress specifically included mining wastes within the Section 1004(27) definition of "solid waste." Therefore unless the statute or legislative history clearly indicate that mining wastes are to be exempt the presumption is that they are to be regulated like any other solid or hazardous waste. Portions of RCRA's legislative history in both the Senate and House of Representatives suggest, however, that certain kinds of mining overburden are not within the Act's jurisdiction. In discussing RCRA's scope the House Report states:

[C]overburden resulting from mining operations and intended for return to the mine site is not considered to be discarded material within the meaning of this legislation. This however does not preclude any finding by the Administrator that specific mine wastes are hazardous within the scope of this legislation.

In the Senate this issue was discussed during the floor debate when Senator Domenici asked about the effect of RCRA on mining operations, particularly strip mining. As part of his response Senator Randolph stated:

The measure would not affect surface mining activities. Reclamation is not solid waste disposal.

Reclamation of surface mines will commonly involve the return to the mine site of waste overburden that has been removed to gain access to the ore deposit. Since it is assumed that both the Senate and House had similar objectives in passing RCRA, the "returned to the mine site" language in the House Report must be read in light of the Senate's concern that mining wastes used to reclaim surface mines should not be subject to RCRA. EPA believes, therefore, that the most

reasonable interpretation of the "return to the mine site" phrase is one that limits the exemption to mining waste used to reclaim surface mines.

Commenters suggested that EPA define overburden as any material removed to gain access to the "economic mineral" or the "mineral being mined for use." While both terms basically convey the same meaning, EPA has decided to use "economic mineral" because it may have a clearer meaning to mining operators. The intent of the term is to identify the material that the mining operator is in the business to extract from the ground.

In keeping with the Congressional intent that this exclusion is designed for overburden used to reclaim surface mines, the definition is limited to overburden "overlying" a mineral deposit. The Department of the Interior makes a similar distinction in the definition of overburden in its regulations under the Surface Mining Control Act. EPA does not intend this definition of overburden to be limited exclusively to the material located directly above a mineral deposit. Some material is removed from the sides of a mining pit to permit safe access to the economic mineral, and such material should be treated as overburden. EPA urges the public to provide suggestions about how the definition may be refined if there appears to be any confusion about the meaning of "overlying" in this context.

Overburden material must be "returned to the mine site" before it is excluded from regulation under RCRA. As indicated earlier, the purpose of the exemption is to assure that mining wastes used to reclaim surface mines are not subject to regulation as solid or hazardous waste. EPA recognizes that reclamation does not necessarily involve replacement of overburden into the portion of the ground from which it was taken. EPA also recognizes that surface mining reclamation may be subject to State or Federal regulation, making it difficult to provide a national definition of what constitutes reclamation. In particular it is difficult to provide a general definition of "mine site" that will fit with the various State and Federal requirements for reclamation.

EPA has decided, therefore, not to define what is meant by reclamation of a surface mine. Several commenters indicated that most reclamation activities are subject to State or Federal regulation. EPA expects that any permits or reclamation plans developed to satisfy such regulatory agencies will specify the reclaimed area, and these actions should provide an acceptable

and understandable specification of the "mine site" as that term is used in this definition. EPA contemplated limiting the exemption to reclamation that was approved by State or Federal agencies. While such a requirement is not part of this regulation, EPA is considering whether such a requirement should be part of the final definition. EPA seeks public comment on such a modification and is particularly interested to discover the extent to which environmentally sound reclamation activity occurs in the absence of Federal and State regulation.

This approach addresses two specific suggestions made in comments. First it clarifies the time component of the "returned to the mine site" concept because it ties the exemption to reclamation activity. Particularly where the mining operation is subject to State or Federal regulation, it should be reasonably clear what portion of the mine's overburden will be used over what period of time to implement a reclamation plan. Second, as indicated above, it eliminates the need for a specific definition of mine site. In any case, EPA does not believe, as one commenter suggested, that the definition of "mine" used in the Agency's Effluent Limitations Guidelines for the Ore Mining and Dressing Point Source Category (under the Clean Water Act) is appropriate for this definition. The CWA definition is designed to identify a full range of mining and associated activities that should be regulated because they generate pollutants which may potentially discharge into navigable waters. The RCRA definition of "mine site" is to identify a reclaimed area that may receive a waste material which will thereby be excluded from environmental regulation under RCRA.

Finally the Agency has eliminated the part of the proposed exemption that would allow exempted overburden to be brought within RCRA jurisdiction through specific listing as a hazardous waste. (EPA believes, however, that uranium mining overburden and phosphate mining overburden will be brought back under Subtitle C jurisdiction, as discussed below.) The only overburden exempted is that which is used for reclamation purposes. EPA expects that the State and Federal agencies that regulate such reclamation will consider the overburden's potential to adversely affect public health and the environment.

EPA believes strongly that portions of the overburden from uranium and phosphate mining should be regulated under Subtitle C with respect to their potential emissions of radon gas and gamma radiation. The Agency

recognizes that this is an issue currently before the Congress in amendments to RCRA. One such amendment would provide specific authority for EPA to regulate these overburdens. If this amendment is enacted, the "overburden returned to the mine site" exclusion will be modified accordingly.

Commenters also questioned the application of the Subtitle C system to in-situ mining wastes. In-situ mining of oil shale, uranium and other minerals may involve the placement of certain solvent solutions directly to a mineral deposit in the ground. This solvent passes through the earth, solubilizing the economic mineral as it goes. The mineral and solvent mixture leaches down to underground extraction wells which remove the solution.

EPA does not believe that the soil through which these solvent solutions pass is a waste to be regulated under RCRA for two reasons. First the removal of materials from their natural state does not transform all remaining elements of that environment into a waste material. For example, picking an apple from a tree does not transform the tree into a solid waste. Likewise the removal of minerals from the land does not make the earth a solid waste.

Second, the soil from which minerals are extracted by in-situ mining does not need to be managed as solid wastes. As indicated in *United States Brewers' Association, Inc. v. EPA, supra.*, the definition of "solid waste" under RCRA must be read in conjunction with Section 1004(28), the definition of "solid waste management," which sets forth the broad set of activities that RCRA is to regulate. None of the management activities identified in Section 1004(28), including "disposal," are relevant to in-place materials located hundreds, even thousands of feet below the ground. Only when these materials are actually removed from the ground can it be reasonable to establish regulations governing the management of those materials. Accordingly in-situ mining wastes, not removed from the ground, are not regulated as solid wastes under these regulations.

A final issue raised in the public comments concerns the relationship between these regulations and the study of mining wastes required under Section 8002(f) of RCRA. Commenters argued that all mining wastes should be excluded from coverage under RCRA regulatory programs (including Subtitle C) pending the outcome of that study.

While the study will certainly assist the Agency in refining these regulations to address the particular environmental problems presented by mining wastes, the Agency does not believe that mining

wastes should be excluded from regulation, any more than any other solid or hazardous waste, until the study is completed. RCRA certainly does not require such a deferral. The fact that the Congress may have perceived a need for further information about mining wastes does not raise the implication that RCRA's regulatory programs should not address the environmental problems presented by such wastes. The definition of "solid waste" in Section 1004(27) specifically includes wastes from mining operations and no other statutory provision otherwise links EPA's jurisdiction over such wastes to completion of the study under Section 8002(f).

It is important to note that pending amendments to RCRA may provide for deferral of regulation of certain mining wastes until completion of the mining waste study. Clearly that indicates a Congressional belief that any deferral of regulation pending the outcome of the study was not contained in RCRA as originally enacted. Certainly if the legislative amendment is passed EPA will modify these regulations accordingly. The Agency has not, however, created such a deferral in anticipation of such an amendment because the amendment is contained in the bill of only one house. Thus the Agency cannot be certain that such an amendment will be part of the final legislation.

7. Sewage Sludge. Unlike the proposed regulation this regulation does not exclude from regulation under Subtitle C sewage sludge from publicly-owned treatment works (POTW's). Several commenters objected to the exclusion contained in the proposed regulation, arguing that it was inconsistent to exclude sewage sludge from POTW's and not exclude sewage sludge from privately-owned systems. They urged EPA to exclude sewage sludge from such private systems. Other commenters urged EPA to exclude wastewater treatment sludges from certain industries such as the meat packing and food processing industries because these sludges are very similar to domestic sewage sludge.

Finally, other commenters objected to the proposed exclusion of sewage sludge from POTW's and urged that this exclusion be dropped. They claimed that POTW sludge often is very contaminated and thereby can be a hazardous waste. They urged that it not enjoy an arbitrary exclusion. EPA has thoroughly re-examined this issue in light of the comments and has decided not to exclude POTW sludge and not to

add exclusions for any other types of sludge.

The regulation of sewage sludge is necessarily a complex matter because such sludges fall within the jurisdiction of several Federal environmental programs. Under Section 1004(27) of RCRA, the definition of "solid waste" specifically includes "sludge from a waste treatment plant." In defining "sludge," Section 1004(26A) includes wastes from a "municipal wastewater treatment plant."

Because of these very clear statutory expressions, EPA must regulate sewage sludge under RCRA—either under Subtitle D, where it has already promulgated regulations covering sewage sludge (see 44 FR 53438 *et seq.*), or under Subtitle C where these sludges that are deemed by EPA to be hazardous wastes should be regulated.

Under Section 102 of the Marine Protection, Research and Sanctuaries Act, EPA regulates the ocean dumping of sludge, including sewage sludge. In addition EPA establishes, under Section 405 of the Clean Water Act (CWA), guidelines for the disposal and utilization of sewage sludge. Under Section 405(e), owners and operators of publicly owned treatment works (POTW's) must comply with these guidelines. Sewage sludge often contains valuable organic matter and plant nutrients, and it may be distributed to the public as a soil conditioner or fertilizer. Such distribution of sewage sludge may be regulated under the Consumer Product Safety Act (CPSA) or the Toxic Substances Control Act (TSCA), in addition to Section 405 of the CWA.

Where such overlapping jurisdiction exists, EPA seeks to integrate and coordinate its regulatory actions to the extent feasible. Such efforts give the regulated community a clear picture of its obligations and improve the administrative efficiency of the Agency, both of which advance the environmental objectives contained in EPA's various statutory authorities. Section 1006 of RCRA specifically recognizes the need to integrate the solid and hazardous waste programs with other EPA regulatory programs.

To that end EPA has decided to develop a comprehensive set of regulations to deal with sewage sludge management. Such regulations would be co-promulgated under RCRA (Subtitles C and D), the Clean Water Act, the Marine Protection, Research and Sanctuaries Act and possibly the Toxic Substances Control Act and/or the Consumer Product Safety Act. These regulations will address sewage sludge